DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1.   A request for continued examination under 37 CFR 1.114, including the

fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection.

Since this application is eligible for continued examination under 37 CFR 1.114,

and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the

previous Office action has been withdrawn pursuant to 37 CFR 1.114.

Applicant's submission filed on 01/25/2012 has been entered.

Drawings

2.   The drawings were received on 05/24/2006. These drawings are

acknowledged / accepted.

EXAMINER'S AMENDMENT

3.   An examiner's amendment to the record appears below. Should the

changes and/or additions be unacceptable to applicant, an amendment may be

filed as provided by 37 CFR 1.312. To ensure consideration of such an

amendment, it MUST be submitted no later than the payment of the issue fee.

      Authorization for this examiner's amendment was given in a telephone

interview with Robert D. McCutcheon (Reg. No. 38,717) on 02/08/2012.

The application has been amended as follows:

In the Claims:

      1.   (Currently Amended)   A method for supporting downlink JD (joint

detection) in a TDD CDMA communication network system, the method

comprising:

judging whether CAI (code allocation information) in a downlink timeslot will change in a next TTI (transmission time interval), wherein the judging comprises at least one of:

judging that the CAI ~~changes if~~ will change when at least one active UE leaves the downlink timeslot;

judging that the CAI ~~changes if~~ will change when at least one UE joins the downlink timeslot;

judging that the CAI ~~changes if~~ will change when ~~the~~ spreading code resource in the downlink timeslot is reallocated to realize optimized configuration of the resource in the downlink timeslot; and

judging that the CAI ~~changes if~~ will change when ~~the~~ at least one active UE performs a cell handover;

modifying the spreading code resource according to the changed CAI, the modifying of the spreading code resource comprising reclaiming the spreading code resource when the at least active UE leaves the downlink timeslot, allocating the spreading code resource when the at least one UE joins the downlink timeslot, and reallocating the spreading code resource when reallocated to realize optimized configuration of the resource or the at least one active UE performs a cell handover;

inserting changed CAI as a specific control information into a specified field in a traffic burst in the downlink timeslot corresponding to current TTI only if the CAI will change, the changed CAI comprising spreading code resources associated with each of a plurality of UEs that uses the downlink timeslot, the

changed CAI comprises the CAI after the spreading code resource is ~~modified~~
<u>either allocated, reallocated, or reclaimed</u>; and

      sending the traffic burst comprising the specific control information to each
of the UEs in the downlink timeslot via a downlink channel, wherein the traffic
burst sent to each of the plurality of UEs comprises spreading code resources
associated with all of the UEs that use the downlink timeslot.

7.   (Currently Amended) A method for supporting downlink JD to be performed by a UE in a TDD CDMA communication network system, the method comprising:

receiving a traffic burst in a downlink timeslot transferred by the network system via downlink channel;

detecting whether the traffic burst comprises code allocation information (CAI) will change in a next TTI in the downlink timeslot, wherein the detecting comprises at least one of:

detecting that the CAI ~~changes if~~ will change when at least one active UE leaves the downlink timeslot;

detecting that the CAI ~~changes if~~ will change when at least one UE joins the downlink timeslot;

detecting that the CAI ~~changes if the~~ will change when spreading code resource in the downlink timeslot is reallocated to realize optimized configuration of the resource in the downlink timeslot; and

detecting that the CAI ~~changes if~~ will change when the at least one active UE performs a cell handover;

modifying the spreading code resource according to the changed CAI, the modifying of the spreading code resource comprising reclaiming the spreading code resource when the at least one active UE leaves the downlink timeslot, allocating the spreading code resource when the at least one UE joins the downlink timeslot, and reallocating the spreading code resource when

reallocated to realize optimized configuration of the resource or the at least one

active UE performs a cell handover;

extracting the CAI only if the traffic burst comprises the CAI, the CAI

comprising spreading code resources associated with all of a plurality of other

UEs that use the downlink timeslot, the extracted CAI comprises the CAI after the

spreading code resource is ~~modified~~ either allocated, reallocated, or reclaimed;

and

performing next-phase JD algorithm to decrease interference by using the

CAI.

10.   (Currently Amended) A method for supporting downlink single-user

JD in a TDD CDMA communication network system, the method comprising:

judging whether an ACN (active code number) in a downlink timeslot will

change in a next TTI, wherein the judging comprises at least one of:

judging that the CAI ~~changes if~~ will change when at least one active

UE leaves the downlink timeslot;

judging that the CAI ~~changes if~~ will change when at least one UE

joins the downlink timeslot;

judging that the CAI ~~changes if the~~ will change when spreading

code resource in the downlink timeslot is reallocated to realize optimized

configuration of the resource in the downlink timeslot; and

judging that the CAI ~~changes if~~ will change when the at least one

active UE performs a cell handover;

modifying the spreading code resource according to the changed CAI, the

modifying of the spreading code resource comprising reclaiming the spreading

code resource when the at least one active UE leaves the downlink timeslot,

allocating the spreading code resource when the at least one UE joins the

downlink timeslot, and reallocating the spreading code resource when

reallocated to realize optimized configuration of the resource or the at least one

active UE performs a cell handover;

inserting changed ACN as a specific control information into a specified

field in a traffic burst in downlink timeslot corresponding to current TTI only if the

ACN will change, the ACN comprising spreading code resources associated with

a plurality of UEs that use the downlink timeslot, the changed CAI comprises the

CAI after the spreading code resource is ~~modified~~ <u>either allocated, reallocated, or</u>

<u>reclaimed</u>;

 sending the traffic burst comprising the specific control information to each

of the UEs in the downlink timeslot via downlink channel, wherein the traffic burst

sent to each of the plurality of UEs comprises spreading code resources

associated with all of the UEs that uses the downlink timeslot

13.   (Currently Amended) A method performed by a UE for supporting downlink single-user JD in a TDD CDMA communication network system, the method comprising:

receiving a traffic burst transferred by the network system via downlink channel in a downlink timeslot;

detecting whether the traffic burst comprises an active code number (ACN) in the next TTI in the downlink timeslot, the ACN comprising spreading code resources associated with all of a plurality of other UEs that use the downlink timeslot, wherein the detecting comprises at least one of:

detecting that the CAI ~~changes if~~ will change when at least one active UE leaves the downlink timeslot;

detecting that the CAI ~~changes if~~ will change when at least one UE joins the downlink timeslot;

detecting that the CAI ~~changes if~~ will change when ~~the~~ spreading code resource in the downlink timeslot is reallocated to realize optimized configuration of the resource in the downlink timeslot; and

detecting that the CAI ~~changes if~~ will change when the at least one active UE performs a cell handover;

modifying the spreading code resource according to the changed CAI, the modifying of the spreading code resource comprising reclaiming the spreading code resource when the at least one active UE the downlink timeslot, allocating the spreading code resource when the at least one UE joins the downlink timeslot, and reallocating the spreading code resource when reallocated to

realize optimized configuration of the resource or the at least one active UE performs a cell handover;

extracting the ACN only if the traffic burst comprises the ACN, the extracted CAI comprises the CAI after the spreading code resource is ~~modified~~ either allocated, reallocated, or reclaimed; and

performing the next-phase JD algorithm to decrease interference by using the ACN.

16.   (Currently Amended) A network system for supporting downlink JD, comprising:

a judging unit configured to judge whether code allocation information (CAI) in a downlink timeslot will change in a next TTI, wherein the judging comprises at least one of:

judging that the CAI ~~changes if~~ will change when at least one active UE leaves the downlink timeslot;

judging that the CAI ~~changes if~~ will change when at least one UE joins the downlink timeslot;

judging that the CAI ~~changes if~~ will change when ~~the~~ spreading code resource in the downlink timeslot is reallocated to realize optimized configuration of the resource in the downlink timeslot; and

judging that the CAI ~~changes if~~ will change when the at least one active UE performs a cell handover;

a resource unit configured to modify the spreading code resource according to the changed CAI, the modifying of the spreading code resource comprising reclaiming the spreading code resource the at least one active UE leaves the downlink timeslot, allocating the spreading code resource when the at least one UE joins the downlink timeslot, and reallocating the spreading code resource when reallocated to realize optimized configuration of the resource or at least one active UE performs a cell handover;

an inserting unit configured to insert changed CAI as a specific control information into a specified filed in a traffic burst in the downlink timeslot

corresponding to current TTI only when the CAI changes, the changed CAI comprising spreading code resources associated with each of a plurality of UEs that uses the downlink timeslot, the changed CAI comprises the CAI after the spreading code resource is ~~modified~~ <u>either allocated, reallocated, or reclaimed</u>;

a sending unit configured to send the traffic burst comprising the specific control information to each of the UEs in the downlink timeslot via a downlink channel, wherein the traffic burst sent to each of the plurality of UEs comprises spreading code resources associated with all of the UEs that uses the downlink timeslot.

19.   (Currently Amended) A UE for supporting downlink JD, comprising:

a receiving unit configured to receive a traffic burst transferred by a network system via a downlink channel in a downlink timeslot;

a detecting unit configured to detect whether the traffic burst comprises code allocation information (CAI) in a next TTI in the downlink timeslot, the CAI comprising spreading code resources associated with all of a plurality of other UEs that use the downlink timeslot, wherein the detecting comprises at least one of:

detecting that the CAI ~~changes if~~ will change when at least one active UE leaves the downlink timeslot;

detecting that the CAI ~~changes if~~ will change when at least one UE joins the downlink timeslot;

detecting that the CAI ~~changes if the~~ will change when spreading code resource in the downlink timeslot is reallocated to realize optimized configuration of the resource in the downlink timeslot; and

detecting that the CAI ~~changes if~~ will change when the at least one active UE performs a cell handover;

a resource unit configured to modify the spreading code resource according to the changed CAI, the modifying of the spreading code resource comprising reclaiming the spreading code resource when the at least one active UE leaves the downlink timeslot, allocating the spreading code resource when the at least one UE joins the downlink timeslot, and reallocating the spreading

code resource when reallocated to realize optimized configuration of the resource or the at least one active UE performs a cell handover;

an extracting unit configured to extract the CAI only when the traffic burst comprises the CAI, the extracted CAI comprising the CAI after the spreading code resource is ~~modified~~ either allocated, reallocated, or reclaimed;

a performing unit configured to perform next-phase JD algorithm to decrease interference by using the CAI.

21.   (Currently Amended)   A network system for supporting downlink single-user JD, comprising:

a judging unit configured to judge whether an active code number (ACN) in a downlink timeslot will change in a next TTI, wherein the judging comprises at least one of:

judging that the CAI ~~changes if~~ will change when at least one active UE leaves the downlink timeslot;

judging that the CAI ~~changes if~~ will change when at least one UE joins the downlink timeslot;

judging that the CAI ~~changes if the~~ will change when spreading code resource in the downlink timeslot is reallocated to realize optimized configuration of the resource in the downlink timeslot; and

judging that the CAI ~~changes if~~ will change when the at least one active UE performs a cell handover;

a resource unit configured to modify the spreading code resource according to the changed CAI, the modifying of the spreading code resource comprising reclaiming the spreading code resource when the at least one active UE leaves the downlink timeslot, allocating the spreading code resource when the at least one UE joins the downlink timeslot, and reallocating the spreading code resource when reallocated to realize optimized configuration of the resource or the at least one active UE performs a cell handover;

a specified field in a traffic burst in the downlink timeslot corresponding to current TTI only when the ACN changes, the ACN comprising spreading code

resources associated with a plurality of UEs that use the downlink timeslot, the

changed CAI comprises the CAI after the spreading code resource is ~~modified~~

either allocated, reallocated, or reclaimed; and

a sending unit configured to send the traffic burst comprising the specific

control information to each of the UEs in the downlink timeslot via downlink

channel, wherein the traffic burst sent to each of the plurality of UEs comprises

spreading code resources associated with all of the UEs that uses the downlink

timeslot.

23.   (Currently Amended)   A UE for supporting downlink single-user JD, comprising:

a receiving unit configured to receive a traffic burst transferred by a network system via a downlink channel in a downlink timeslot;

a detecting unit configured to detect whether the traffic burst comprises an active code number (ACN) in the downlink timeslot in a next TTI, wherein the detecting comprises at least one of:

detecting that the CAI ~~changes if~~ will change when at least one active UE leaves the downlink timeslot;

detecting that the CAI ~~changes if~~ will change when at least one UE joins the downlink timeslot;

detecting that the CAI ~~changes if the~~ will change when spreading code resource in the downlink timeslot is reallocated to realize optimized configuration of the resource in the downlink timeslot; and

detecting that the CAI ~~changes if~~ will change when the at least one active UE performs a cell handover;

a resource unit configured to modify the spreading code resource according to the changed CAI, the modifying of the spreading code resource comprising reclaiming the spreading code resource when the at least one active UE leaves the downlink timeslot, allocating the spreading code resource when the at least one UE joins the downlink timeslot, and reallocating the spreading code resource when reallocated to realize optimized configuration of the resource or the at least one active UE performs a cell handover;

an extracting unit configured to extract the ACN only when the traffic burst contains the ACN, the ACN comprising spreading code resources associated with all of a plurality of other UEs that use the downlink timeslot, the extracted CAI comprising the CAI after the spreading code resource is ~~modified~~ either allocated, reallocated, or reclaimed; and

a performing unit configured to perform next-phase single-user JD algorithm to decrease interference by using the ACN.

Allowable Subject Matter

4.   In view of amended claims and further search, Claims 1, 2, 6-17, and 19-24 are allowed.

5.   The following is an examiner's statement of reasons for allowance: Claims 1, 2, 6-17, and 19-24 are allowed for the reasons as set forth in applicant's response filed on 12/28/2011.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to BABAR SARWAR whose telephone number

is (571)270-5584. The examiner can normally be reached on MONDAY TO

FRIDAY 08:00 AM -04:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the

examiner's supervisor, NICK CORSARO can be reached on (571)272-7876. The

fax phone number for the organization where this application or proceeding is

assigned is 571-273-8300.

Information regarding the status of an application may be obtained from

the Patent Application Information Retrieval (PAIR) system. Status information

for published applications may be obtained from either Private PAIR or Public

PAIR. Status information for unpublished applications is available through

Private PAIR only. For more information about the PAIR system, see http://pair-

direct.uspto.gov. Should you have questions on access to the Private PAIR

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-

free). If you would like assistance from a USPTO Customer Service

Representative or access to the automated information system, call 800-786-

9199 (IN USA OR CANADA) or 571-272-1000.

/BABAR SARWAR/
Examiner, Art Unit 2617

/NICK CORSARO/
Supervisory Patent Examiner, Art Unit 2617